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ABSTRACT

To some educators, infusing environmental education into different subject areas at different levels may seem like an insurmountable task. This handbook was developed to take the guesswork out of this process and alleviate the fear and confusion that may result. It was designed to assist with infusing knowledge and attitude activities into the classroom, correlate widely used curriculum supplements with the objectives and principles in the Wisconsin Department of Public Instruction's environmental education guide, and simplify the infusion process using proven and effective activities. Activities are categorized by subject areas, grade levels, environmental education objectives, and ecological principles. Major resources coordinated in this volume include: (1) "Project Learning Tree"; (2) "Project WILD"; (3) "Living Lightly in the City"; (4) "Nature with Children of all Ages"; and (5) "Sharing Nature with Children." The "Fundamental Environmental Principles" are enumerated. Appendices include a "Grades 4-6 Appendix" and environmental education resources. (CW)

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Avoiding Infusion Confusion

A Practical Handbook for Infusing Environmental Activities into your Classroom

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1987

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Additional copies of Avoiding Infusion Confusion are available for grades K–3, 4–6, 7–9, and 10–12.
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(See order form at the end of this handbook.)

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INTRODUCTION

"Environmental education should permeate the entire curriculum with every subject area at every grade level dealing with the environment in some way," according to the Wisconsin Department of Public Instruction's A Guide to Curriculum Planning in Environmental Education. To some educators this may seem like an insurmountable task, especially to those unfamiliar with what environmental education has to offer. To help simplify the process of infusing environmental education activities into your present curriculum, we have developed a handbook that takes the guesswork out of this process and alleviates the fear and confusion that may result.

What is "Avoiding Infusion Confusion"?

It is a handbook designed to...

...assist educators with infusing environmental education activities into the classroom.

...correlate widely used curriculum supplements with the objectives and principles in the DPI's A Guide to Curriculum Planning in Environmental Education

...simplify the infusion process utilizing proven and effective activities.

How is it used?

The format is designed for quick reference. Activities are categorized by subject area. They are also coordinated with grade level, environmental education objective and ecological principles.

Why was this handbook written?

It was written to assist...

...school districts in developing a program for the infusion of environmental education into Wisconsin Public School curricula as required by state mandate.

...individual teachers in selecting appropriate activities best suited for their classroom situation.

...educators in developing a systematic approach to infusion that will help reduce preparation time.

By infusing environmental education activities into every subject area in our school systems and in our student's everyday lives, we are increasing their knowledge, and appreciation of the natural environment. We are also insuring that students will be better equipped to make responsible decisions when faced with environmental issues. The task of infusing environmental education may seem like a tall order, but we're sure you'll agree that it's well worth the effort. Good luck!

Objective Categories

Grade-Level Emphases on Environmental Education Objective Categories

Level	Major Emphasis	Minor Emphasis
K - 3	Awareness Attitudes	Knowledge Skills Participation
3 - 6	Knowledge Attitudes	Awareness Skills Participation
6 - 9	Knowledge Skills Attitudes	Awareness Participation
9 - 12	Skills Participation Attitudes	Awareness Knowledge

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We have divided our handbook into four separate parts, according to grade levels. The four are: K-3, 4-6, 7-9, and 10-12. Piaget's levels of intellectual development illustrate the importance of teaching basic skills and concepts to young children, and moving towards more challenging activities. This is reflected in a changing degree of emphasis on each objective category for each of the four grade-level groups. As an administrator or teacher, you will want to know what to emphasize with your students and what will be emphasized in other grades, as well as your own. This will insure that each program has sequence, and each student has consistency from year to year.

How to use this Handbook

This handbook combines activities contained in selected, widely used environmental education programs, and the principles developed by the Department of Public Instruction (DPI) in its Guide to Curriculum Planning in Environmental Education. The activities are organized by: principle number, the environmental education resource, (i.e. Project WILD) and the appropriate content areas (i.e. Language Arts).

As you use this handbook, you will notice that the distribution of activities among the principles and the content areas, is not always equal. The environmental education programs chosen, did not always contain activities that could be used to teach every one of the principles developed by the DPI. In addition, activities were not always appropriate for use in every one of the five content areas. By filling in the blank boxes with activities you are familiar with and know to be suitable for that principle, content area, and grade level, the handbook becomes a personalized, timesaving device for infusing environmental education into your lesson plans and curriculum. A list of additional resources has been provided at the end of this handbook.

Organization of the Materials

Each principle taken from the DPI Guide to Curriculum Planning in Environmental Education is listed by number at the top of the left-hand page. Each of these numbers corresponds to an abridged version of the DPI's principles found on pages 5-8 of this handbook. The complete unabridged list of principles may be found in the DPI guide on pages 13-22.

At the top of each right-hand page you will also find a list of concepts. These concepts summarize the principles and are designed as a quick reference to the major points of the corresponding principle.

Environmental education resources are listed in the left hand column. Activities from each of these resources are organized according to the content area they relate to. This handbook is limited to the five content areas of Art, Health, Language Arts, Science, and Social Studies. The DPI has singled out these content areas because they most readily lend themselves to the process of infusion.

Activities were analyzed and placed in a particular box or series of boxes based on how well they teach a principle or concept. This is a subjective process to some degree. You may find that by actually conducting an activity in the classroom or outdoors that you feel it belongs with another principle or content area. One of the strengths of this handbook is its adaptability to your needs and situation.

A maximum of five activities are listed in each box. An asterisk inside a box indicates that there are additional activities listed in the appendix beginning on page 83. To find these overflow activities, turn to the appendix and locate the number of the principle you are working with (far left column). Once you have found the correct principle number, work from left to right and locate the content area, the environmental education resource you are using, and finally, the list of activities in the right column. The activities are arranged by the page number where they are found in the environmental education resource.

In addition to the appendix and resource section, a concept index is located at the back of this handbook. The concepts are arranged individually and in alphabetical order. If you wish to teach a particular concept and need a good activity, simply turn to the concept index and it will list the page in the handbook where this concept can be located. Please note: not all of the activities teach each of the concepts listed. You will need to look at the individual activity to determine if it teaches the concept, principle or idea you had in mind.

Finding an activity in this handbook: An Example

Imagine that you are a seventh grade Language Arts teacher planning a lesson that incorporates the ecological concept of interdependence. You would like to use an activity that would help illustrate this concept and would be appropriate for the grade level and subject area that you are teaching. You have a number of environmental education resources (i.e. Project Learning Tree) but you have not had a chance to use them extensively in the classroom. Along with your other materials you have this exciting new handbook that is designed to simplify the process of infusing environmental education into your lesson plans.

Step 1. Turn to the "Concept Index" in the back of this handbook under "Interdependence" listed alphabetically. Next to the concept is the principle number and the page number it is located on. You may use either the principle number or the page number to locate this concept.

Step 2. After finding the page number and/or principle number, turn to the Environmental Activities Section and locate the appropriate page. You will find the concept (possibly along with others) at the top of the right page.

Step 3. Locate the environmental education resource you would like to use from those listed in the left column.

Step 4. Move across the row of boxes until you are beneath the correct content area. This box may contain a list of activity titles and page numbers. An empty box means that there was not an appropriate activity in the environmental education resource for this subject area and concept. If one or more activities are listed, turn to the environmental education resource that you are using and check to see if the activity teaches the concept you are interested in. Remember that an asterisk in the box indicates additional activities for these concepts and this environmental education resource are located in the appendix of this handbook.

Fundamental Environmental Principles*

Concept	Principle
Solar Energy	(1)
Secondary Energy Sources	(2)
Earth's Energy Balance	(3)
Weather & Climate, Water Cycle, Biosphere Oceanography	(4)
Decomposition, Erosion Habitat, Interaction, Interdependence, & Niche	(5)
Adaptations, Change, Camouflage, Continental Drift, Diversity, Evolution, & Succession	(6)
Biogeochemical Cycles, Energy Transfer, Food Webs, Photosynthesis, Renewable Resources, & Respiration	(7)
Birth-Death Rate, Carrying Capacity, Homeostasis, Human Population Growth, Limiting Factors, & Population	(8)

I. Fundamental Principles Dealing with Earth's Environment

A. Earth's environment operates as a system supported by conditions that are functions of earth's structure and place in the solar system.

1. Solar energy is the primary source of energy for all biogeochemical cycles and other processes occurring on earth.
2. Nuclear processes, geothermal sources, tidal movements, and gravity are secondary sources.
3. The earth is in a state of overall energy balance, absorbing energy from the sun and radiating it into space.
4. Absorption and distribution of solar energy results in the movement of global air masses, the hydrologic (water) cycle, and ocean currents, giving rise to earth's prevailing weather and climates and providing conditions essential to life on earth.

B. Earth's environment is a complex, interrelated, interactive, dynamic, constantly changing macrosystem called the ecosphere.

1. The ecosphere is composed of a mosaic of interacting systems called ecosystems.
2. The ecosphere has and is undergoing continuous change.
3. Energy and materials required for life pass into or are found in the ecosphere, and are components of each ecosystem.
4. Each ecosystem of the ecosphere contains a number of species populations, the size and stability of which vary, depending on biotic and abiotic changes in the system.

* Reprinted and revised with permission from the Wisconsin D.P.I.
Outline based on 1976 Federal Interagency Committee on Education Report.

Concept	Principle
Biological Needs of Humans	(9)
Psychological Needs of Humans	(10)
Use of Materials and Energy, Cultural Attitudes, Values, & Pollution	(11)
Human's Ecological Domination of Earth	(12)
Effects of Humans on Ecosystems Social Interaction	(13)
Human Population Growth and Technology and its Effects on Ecosystems	(14)
Effects of Values on Human Behavior-Impacts on Ecosystems	(15)
Built Environments are Influenced by Ecosystems	(16)

II. Fundamental Principles Dealing with Humans as Ecosystem Components

A. Humans use ecosystems to satisfy basic needs and desires.

1. Basic biological needs that must be met for humans to live and grow include habitable climate, energy, materials, rest and exercise, other humans for reproduction, and protection against environmental stress.

2. Humans cannot grow and completely develop mentally unless essential psychological and social needs and desires are met. These include security, love, esteem, self-fulfillment, social interaction, health, comfort, material goods, and religious experiences.

3. Each human culture has its own perceived needs and desires that make different demands and impacts on ecosystems. In times of stress many of these needs and desires can be adjusted.

B. Humans are an all-pervasive species in the ecosphere and thus exert a special ecological dominance.

1. Human domination results from various factors which include...large intellectual capacity, adaptation to a wide range of environmental conditions, large population size, specialization in diversity of labor.

2. Human tendencies to form and function in social and corporate groups and institutions promote development of human habitats that create unique concentrated demands on ecosystems and further increase human effects on ecosystems.

3. Recent rapid increases in human populations and technological capabilities have accelerated ecosystem changes until some are potentially irreversible.

4. Human aesthetic, ethical, moral, and spiritual values may reinforce or conflict with harmonious relationships within ecosystems.

C. Ecosystems affect humans

1. Humans and all their products function in an ecosystem framework.

Concept	Principle
Ecosphere Changes Due to Human Population and Technology Nonrenewable Resources	(17)
Physical and Chemical Components of Ecosystems: Effects on Humans	(18)
Human Needs and Values: Effects on Ecosystems	(19)
Interrelationships	(20)
Feedback Mechanisms of Ecosystems	(21)
Synergistic Effects	(22)
Appreciating Ecosystems and their Components, Appreciating the Environment, Human Impacts on Ecosystems	(23)
Barriers to Ecosystem Harmony	(24)

2. Ecosphere changes due to increasing human population and technology have both short and long term effects.

3. The built environment and its psychological miliea have a powerful effect on humans. Information transfer by verbal comunication and learned behavior operates on humans in a parallel and synergistic manner in much the same way as do physical and chemical components of ecosystems.

D. Complex interactions among humans and other ecosystem components occur continuously.

1. Humans' perceptions of their needs, their impacts on ecosystems, and ecosystem impacts on them, reflect the cultural and individual values, goals, skills, insights, and capabilities of the individuals, groups, institutions, and nations involved.

2. Relationships among components of ecosystems are reciprocal, ranging from mutually beneficial to unidirectionally destructive.

3. Feedback mechanisms of different kinds, for xample physical, chemical, social, behavioral, ranging from rudimentary to highly sophisticated, govern relationships among and within components of ecosystems.

4. Human activities often have synergistic effects on ecosystems and visa versa.

5. Human activities affect ecosystem maintenance and management.

III. Methods for Harmonizing Human Activities with Ecosystem Processes to Achieve Environmental Quality

A. Methods by which human activities, local through global, are harmonized with ecosystem processes are complex, and outcomes are not always predictable.

1. Barriers to harmony include...effects of ecosystem changes, lack of knowledge needed to make environmental predictions, and lack of uniformly dependable social-political cooperation.

Concept	Principle	
Methods to Attain Harmony	(25)	2. Harmony can be pursued through...education, environmental art, citizen action, voluntary and formal policies, economic and social incentives, and enforcement of policies.
Methods to Promote Harmony	(26)	3. Institutions, processes, and attitudes for promoting harmony include...education and communication, ethical, moral and other influences, science and technology, civic and social institutions, government and political processes, industry and commerce.
		B. Basic procedure for harmonizing human activities with ecosystem processes can be described as a series of steps.
Investigation of Ecosystems	(27)	1. Investigate ecosystem processes and components, including the effects of human activities on ecosystems and the inflluences of ecosystems on human functioning.
Importance of Ecosystem Processes and Changes	(28)	2. Recognize the importance of ecosystem processes and the significance of ecosystem changes.
Causes of Ecosystem Changes and their Consequences	(29)	3. Identify the causes of ecosystem changes and their consequences.
Action Strategies	(30)	4. Develop alternative action strategies to maintain and enhance beneficial ecosystem changes and to reduce detrimental changes, with special attention to irreversible changes and to long range versus short range commitments of resources.
Analyzing and Evaluating Alternative Action Strategies	(31)	5. Analyze and evaluate alternative action strategies within a broad array of environmental, social, and economic criteria, recognizing that criteria will differ according to circumstances of politics, geography, scale, time and society.
Adopting Action	(32)	6. Select among alternative action strategies, and adopt a policy which can be implemented at all levels, individual through global.
Implementing Action Strategies	(33)	7. Decide on and complete actions to implement the policy.
Monitoring and Evaluating Policies	(34)	8. Monitor and evaluate affects of the implemented policy.
Monitoring Feedback and Adjusting Actions as Necessary	(35)	9. Feeding information gained in Principle 34 back through Principle 27 to adjust actions to changing data bases, requirements, conditions, and perceptions.

Where to Obtain the Environmental Education Resources used in this Handbook:

The CLASS Project

Margaret Rosenberry and NWF staff. Published by and available from National Wildlife Federation, 1412 Sixteenth Street, Washington, D.C. 20036, 1982.

Investigating and Evaluating Environmental Issues and Actions Skill Development Modules.

Harold R. Hungerford, Ralph A. Litherland, R. Ben Peyton, John M. Ramsey, Audrey N. Tomera, and Trudi L. Volk. Champaign, IL. Stipes Publishing Company, 1985

Living Lightly in the City for Grades K-3 and 4-6.

Maura O'Conner, 1985

Living Lightly on the Planet for Grades 7-9 and 10-12

Maura O'Conner and Kathy McGlauflin, 1982, 1984. Published and available from the Schiltz Audubon Center, 1111 East Brown Deer Road Milwaukee, WI, 53217

Nature with Children of All Ages

Edith Sisson. Published by Englewood Cliffs of NJ in 1982. Available through bookstores.

Project Learning Tree: Supplemental Activity Guide for Grades K-6 and 7-12.

Western Regional Environmental Education Council and the American Forest Institute. Published by the American Forest Institute, Washington D.C. in 1975. Available only through a six hour workshop offered throughout the state. Contact Project Learning Tree, Wisconsin DNR, P.O. Box 7921, Madison, WI 53707.

Project WILD: Elementary and Secondary Guides.

Western Regional Environmental Education Council. Published in 1985. Available only through co-sponsoring states at six hour teacher workshops. Contact Project WILD, Wisconsin DNR, P.O. Box 7921, Madison, WI 53707.

Sharing Nature With Children

Joseph Bharat Cornell. Published by Ananda Publications of Nevada City, CA in 1979. Available through bookstores.

A Guide to Curriculum Planning in Environmental Education

Wisconsin Department of Public Instruction. Published by and available from the Wisconsin Department of Public Instruction, 125 South Webster Street, P.O. Box 7841, Madison, WI 53707

Resources Used by Each Grade Level

K-3

Project Learning Tree
Project WILD
Sharing Nature with Children
Nature with Children of All Ages
Living Lightly in the City

4-6

Project Learning Tree
Project WILD
Sharing Nature with Children
Living Lightly in the City

7-9 and 10-12

Project Learning Tree
Project WILD
The CLASS Project
Investigating and Evaluating Environmental Issues and Action
Skill Development Modules
Living Lightly on the Planet

Environmental Activities Section

Grades 4 - 6

Principle #1

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)		
Sharing Nature With Children		
Living Lightly in the City		

Concept: Solar energy

Content Areas

Language Arts	Science	Social Studies
	Sunshine Energy p. 126	

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Principle #2

Environmental Education Resources	Content Areas: Art	Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)		
Sharing Nature With Children		
Living Lightly in the City		

Content Areas

Language Arts	Science	Social Studies
Keep on Truckin'? p. 148	Keep on Truckin'? p. 148	Can You Dig It? p. 92 Keep on Truckin'? p. 148

Principle #3

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)		
Sharing Nature With Children		
Living Lightly in the City		

Concept: Earth's energy balance

Content Areas

Language Arts	Science	Social Studies
	Plant Growth and Temperature p. 120	
	27	

Principle #4

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)		Expanding Sensory Perception p. 12
Project WILD (Elementary)		Water's Going On?! p. 213
Sharing Nature With Children		
Living Lightly in the City		Water Cycles p. 41

Concept: Weather & climate
Water Cycle
Biosphere
Oceanography

Content Areas

Language Arts	Science	Social Studies
	Expanding Sensory Perception p.12 What's In Soil p. 87 Water You Know p. 94 Christmas Trees p. 118	Water You Know p. 94 Rainfall and the Forest p. 121
Stormy Weather p. 25	Stormy Weather p. 25 Rainfall and the Forest p. 121 Water's Going On?! p. 213	Stormy Weather p. 25 Rainfall and the Forest p. 121 Water's Going On?! p. 213
Water Cycles p. 41	Water Cycles p. 41 From the Ground Down p. 109	

Grades 4 - 6

Principle #5

Environmental Education Resources	Content Areas Art	Health
Project Learning Tree (Elementary)	Web of Life p. 106 Large Leaves p. 111	
Project WILD (Elementary)	My Kingdom for a Shelter p. 47	What's for Dinner? p. 49 Lobster in Your Lunchbox p. 159
Sharing Nature With Children		
Living Lightly in the City		

Concept: Interaction
Interdependence
Habitat
Niche
Decomposition
Erosion

*-See Appendix for Additional Activities

Content Areas

Language Arts	Science	Social Studies
	Holding Power p. 47 A Tree From an Acorn Grows p. 83 School Yard Safari p. 85 The Fallen Log p. 100	Holding Power p. 47 Fertilizers p. 136 Fire! p. 138
What's for Dinner? p. 49 Good Buddies p. 87 Lobster in Your Lunchbox p. 159	My Kingdom For a Shelter p. 47 What's For Dinner? p. 49 Eco Enrichers p. 69 Lobster in Your Lunchbox p. 159	Rainfall and the Forest p. 121
Recipe For a Forest p. 54	Microhike p. 47 Recipe For a Forest p. 54	
Nature in the Neighborhood p. 8 Ant Antics p. 51	Nature in the Neighborhood p. 8 Ant Antics p. 51 Nature's Clean-up Crew p. 65 Worm's the Word p. 66 Going Down p. 110	

Principle #6

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)	The Closer You Look p. 10 Branching Out p. 23 Did You Notice? p. 64 Make a Fossil p. 146	Healing Wounds p. 86
Project WILD (Elementary)	Tracks! p. 55 Adaptation Artistry p. 97 Seeing Is Believing p. 99 Smokey the Bear Said What? p. 143	
Sharing Nature With Children	Unnature Trail p. 40	
Living Lightly in the City		

Concept: Continental drift
Change
Succession
Evolution
Diversity
Adaptations
Camouflage

*-See Appendix for Additional Activities

Content Areas

Language Arts	Science	Social Studies
Adopt a Tree p. 3	Signs of Fall p. 24 A Tree From an Acorn Grows p. 83 Seed Dispersal p. 102 Bird 'n' Worms p. 115 *	Did You Notice p. 64 Succession and Soil Compaction p. 134
The Thicket Game p. 95 Adaptation Artistry p. 97 Seeing Is Believing p. 99 Polar Bears in Phoenix p. 103 Smokey the Bear Said What? p. 143	Tracks! p. 55 Forest In a Jar p. 91 Pond Succession p. 93 The Thicket Game p. 95 Adaptation Artistry p. 97 Polar Bears in Phoenix p. 103	Pond Succession p. 93 Polar Bears in Phoenix p. 103 Smokey the Bear Said What? p. 143
Unnature Trail p. 40	Unnature Trail p. 40 Plant Succession Crawl p. 60 Animal Parts p. 82 Camouflage p. 88	Unnature Trail p. 40
Hidden Worms p. 55 Invent a City Critter p. 55	Hidden Worms p. 55 Invent a City Critter p. 55	Invent a City Critter p. 55

Principle #7

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)	Web of Life p. 106	Did You Ever Eat a Pine Tree? p. 50
Project WILD (Elementary)		Lobster in Your Lunchbox p. 159 Deadly Links p. 197 What Did Your Lunch Cost Wildlife? p. 215
Sharing Nature With Children		
Living Lightly in the City		

Concept: Energy transfer
Photosynthesis
Respiration
Biogeochemical cycles
Food webs
Renewable resources

*-See Appendix for Additional Activities

Content Areas

Language Arts	Science	Social Studies
	Did You Ever Eat a Pine Tree? p. 50 Sap + Energy = Syrup p. 90 Sunlight and Shades of Green p. 99 A Field, a Forest and a Stream p. 124	Did You Ever Eat a Pine Tree? p. 50 Sap + Energy = Syrup p. 90
Lobster in Your Lunchbox p. 159 Quick Frozen Critters p. 105	Quick Frozen Critters p. 105 Owl Pellets p. 125 Lobster in Your Lunchbox p. 159 Deadly Links p. 197 *	Lobster in Your Lunchbox p. 159 Deadly Links p. 197 What Did Your Lunch Cost Wildlife p. 215
Meet a Tree p. 26 Pyramid of Life p. 52 Webbing p. 56	Meet a Tree p. 26 Pyramid of Life p. 52 Webbing p. 56 Predator-Prey p. 58	
Community Workers Web p. 27 Green Neighbors p. 50 Vacant Lot Food Web p. 53	Community Workers Web p. 27 Green Neighbors p. 50 Vacant Lot Food Web p. 53 Nature's Clean-up Crew p. 65 Worm's the Word p. 66	Community Workers Web p. 27

Principle #8

Environmental Education Resources	Content Areas Art	Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)	Color Crazy p. 11 Adaptation Artistry p. 97	
Sharing Nature With Children		
Living Lightly in the City		

Concept: Population
Birth/Death rate
Human population growth
Carrying capacity
Homeostasis
Limiting factors

*-See Appendix for Additional Activities

Content Areas

Language Arts	Science	Social Studies
	Healthy and Unhealthy p. 129 Fire! p. 138	Healthy and Unhealthy p. 129 Fire! p. 138
Color Crazy p. 11 Graphananimal p. 81 Urban Nature Search p. 83 Quick Frozen Critters p. 105 Classroom Carrying Capacity p. 109 •	Bearly Born p. 5 Quick Frozen Critters p. 105 How Many Bears Can Live In This Forest? p. 115 Oh Deer! p. 131 •	Urban Nature Search p. 83 Classroom Carrying Capacity p. 109 How Many Bears Can Live In This Forest? p. 115 Oh Deer! p. 131
Animal Game p. 66	Predator-Prey p. 58 Animal Game p. 66 Owls and Crows p. 72 Noah's Ark p. 81	

Principle #9

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)		Did You Ever Eat a Pine Tree? p. 50
Project WILD (Elementary)	Make a Coat p. 75	The Beautiful Basics p. 29 Water's Going On?! p. 213
Sharing Nature With Children		
Living Lightly in the City		

*-See Appendix for Additional Activities

Content Areas

Language Arts	Science	Social Studies
Sounds in City and Forest p. 7 Choose an Environment p. 9	Did You Ever Eat a Pine Tree? p. 50 Water You Know p. 94	Sounds in City and Forest p. 7 Choose an Environment p. 9 Did You Ever Eat a Pine Tree? p. 50
The Beautiful Basics p. 29 Habitracks p. 35 Make a Coat p. 75 Classroom Carrying Capacity p. 109	The Beautiful Basics p. 29 Make a Coat p. 75 Classroom Carrying Capacity p. 109 Water's Going On?! p. 213 *	Habitracks p. 35 Classroom Carrying Capacity p. 109 How Many Bears Can Live In This Forest? p. 115 Water's Going On?! p. 213
	Shelter In the Neighborhood p. 7 Finding Out About Fibers p. 125	Shelter In the Neighborhood p. 7 Finding Out About Fibers p. 125

Principle #10

Environmental Education Resources	Content Areas Art	Health
Project Learning Tree (Elementary)	Natural Art p. 44	Expanding Sensory Perception p. 12
Project WILD (Elementary)	Museum Search For Wildlife p. 65 Wildlife in National Symbols p. 175	
Sharing Nature With Children		
Living Lightly in the City		

Content Areas

Language Arts	Science	Social Studies
Sounds in City and Forest p. 7 Choose an Environment p. 9	Expanding Sensory Perception p. 12 With or Without p. 37 City Trees p. 80	Sounds in City and Forest p. 7 Choose an Environment p. 9 Maple Mallets and Ash Bats p. 35 With or Without p. 37 City Trees p. 80
Wild Words p. 59 Animal Poetry p. 63 Wildwork p. 129 Museum Search For Wildlife p. 65	Wild Words p. 59 Animal Poetry p. 63 Wildwork p. 129 Wildlife in National Symbols p. 175	Museum Search For Wildlife p. 65 Wildwork p. 129 Wildlife in National Symbols p. 175
		Catch a Horse p. 86

Principle #11

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)	Make Your Own Paper p. 36 Woven History p. 53 Folklore p. 57	
Project WILD (Elementary)	Litter We Know p. 51 Make a Coat p. 75 Ethi-Thinking p. 209	
Sharing Nature With Children		
Living Lightly in the City		

Concept: Use of materials & energy
Pollution
Cultural attitudes
Values

*-See Appendix for Additional Activities

Content Areas

Language Arts	Science	Social Studies
Choose an Environment p. 9 Interview a Board Worker p. 34 Woven History p. 53 Folklore p. 57	Why Wooden Pencils p. 89	Choose an Environment p. 9 Interview a Board Worker p. 34 Woven History p. 53 Folklore p. 57 Start A City p. 63
Litter We Know p. 51 Saturday Morning Wildlife Watching p. 165 Changing Attitudes p. 177 Ethi-Thinking p. 209 *	Litter We Know p. 51 Saturday Morning Wildlife Watching p. 165 Keeping Score p. 201 Ethi-Thinking p. 209 *	Litter We Know p. 51 Saturday Morning Wildlife Watching p. 165 Changing Attitudes p. 177 Keeping Score p. 201 *
Looking Back p. 14 Vacant Lot Archeology p. 16 Rocks to Buildings p. 18 Moving Around My City p. 34 *	Vacant Lot Archeology p. 16 Resources For All? p. 79 The Air We Breath p. 91 Water Equality p. 112 *	Rocks to Buildings p. 18 From Canoes to Cars p. 35 Checking Out the Supermarket p. 69 People On the Move p. 90 *

Grades 4 - 6

Principle #12

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)		
Sharing Nature With Children		
Living Lightly in the City		

Content Areas

Language Arts	Science	Social Studies
Microtek Scavenger Hunt p. 21 The Hunter p. 153 Does Wildlife Sell Cigarettes? p. 169 To Zone Or Not To Zone p. 193	Microtek Scavenger Hunt p. 21 The Hunter p. 153 Shrinking Habitat p. 187 To Zone Or Not To Zone p. 193	Microtek Scavenger Hunt p. 21 The Hunter p. 153 Does Wildlife Sell Cigarettes? p. 169 Shrinking Habitat p. 187 To Zone Or Not To Zone p. 193
Native American Timeline p. 120	Native American Timeline p. 120	

Principle #13

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)	Let's Go Fly a Kite p. 67	
Sharing Nature With Children		
Living Lightly in the City		Where Does the Water Go? p. 42

Concept: Effects of humans on ecosystems
Social interactions

*-See Appendix for Additional Activities

Content Areas

Language Arts	Science	Social Studies
Memory Circle p. 21	Succession and Soil Compaction p. 134	Memory Circle p. 21 Maple Mallets and Ash Boats p. 35 The Native Way. A Natural Lifestyle p. 66 Succession and Soil Compaction p. 134 •
Wildlife Is Everywhere p. 19 Classroom Carrying Capacity p. 109 Does Wildlife Sell Cigarettes? p. 169 Too Close For Comfort p. 185	Habitat Lap Sit p. 33 Classroom Carrying Capacity p. 109 Too Close For Comfort p. 185 Playing Lightly On the Earth p. 211	Wildlife Is Everywhere p. 19 Classroom Carrying Capacity p. 109 Does Wildlife Sell Cigarettes? p. 169 Too Close For Comfort p. 185 Playing Lightly On the Earth p. 211
What Are We Consuming? p. 24 Community Workers Web p. 27 Where Does the Water Go? p. 42 Living In the Fast Lane p. 90 •	What Are We Consuming? p. 24 Community Workers Web p. 27 Where Does the Water Go? p. 42 Land Use Planning For the Future p. 94 From Farm To Table p. 124	What Are We Consuming? p. 24 Community Workers Web p. 27 Where Does the Water Go? p. 42 Land Use Planning For the Future p. 94 From Farm To Table p. 124

Principle #14

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)	Litter We Know p. 51	What Did Your Lunch Cost Wildlife? p. 215
Sharing Nature With Children		
Living Lightly in the City		Places People Work p. 7

*-See Appendix for Additional Activities

Content Areas

Language Arts	Science	Social Studies
Keep on Truckin'? p. 148	Holding Power p. 47 Rainfall and the Forest p. 122 A Field, A Forest and a Stream p. 124 Keep on Truckin'? p. 148	Holding Power p. 47 Paper In the Classroom p. 51 Succession and Soil Compaction p. 134 Keep on Truckin'? p. 148
Here Today, Gone Tomorrow p. 135 No Water Off a Duck's Back p. 151 Too Close For Comfort p. 185 Keeping Score p. 201 *	Environmental Barometer p. 73 Here Today, Gone Tomorrow p. 135 Checks and Balances p. 147 Deadly Links p. 197 *	Litter We Know p. 51 The Hunter p. 153 Shrinking Habitat p. 187
Places People Work p. 7 Looking Back p. 14 Vacant Lot Archeology p. 16 What Are We Consuming p. 24	Places People Work p. 7 Food For Thought p. 78 Resources For All p. 79 Water Dwellers p 106 *	Looking Back p. 14 Vacant Lot Archeology p. 16 What Are We Consuming p. 24 Move Over! p. 76 *

Principle #15

Environmental Education Resources	Content Areas Art	Health
Project Learning Tree (Elementary)		An Individual Experiment p. 8
Project WILD (Elementary)		
Sharing Nature With Children		
Living Lightly in the City	Make a Recycling Jar p. 67	

Concept: Effects of values on human behavior: its impact on ecosystems

*-See Appendix for Additional Activities

Content Areas

Language Arts	Science	Social Studies
Choose an Environment p. 9 Memory Circle p. 21 Plant Personification p. 25 Keep on Truckin'? p. 148	An Individual Experiment p. 8 Plant Personification p. 25 Keep on Truckin'? p. 148	Memory Circle p. 21 My Use Or Your Use Or Our Use p. 75 Long Range - Short Range p. 78 Another Way of Seeing p. 150
Grasshopper Gravity p. 15 Who Lives Here? p. 139 The Hunter p. 153 First Impressions p. 161	Who Lives Here? p. 139 Checks and Balances p. 147 First Impressions p. 161 Playing Lightly On the Earth p. 211 *	Grasshopper Gravity p. 15 Who Lives Here? p. 139 The Hunter p. 153 Playing Lightly on the Earth p. 211
	Survival Hike p. 116	Survival Hike p. 116
Wanted: Environmental Helpers p. 28 My Water Record p. 43 Clean It Up Campaign p. 63	Wanted: Environmental Helpers p. 28 My Water Record p. 43 Clean It Up Campaign p. 63 Make a Recycling Jar p. 67	Wanted: Environmental Helpers p. 28 Clean It Up Campaign p. 63

Grades 4 - 6

Principle #16

Environmental Education Resources	Content Areas Art	 Health
Project Learning Tree (Elementary)	Native American Dwellings p. 68	Invent a Game p. 41
Project WILD (Elementary)		
Sharing Nature With Children		
Living Lightly in the City		

Concept: Built environments are influenced by ecosystems

Content Areas

Language Arts	Science	Social Studies
Choose an Environment p. 9 How'd That Get Here? p. 73		Choose an Environment p. 9 Origin of Urban Open Space p. 29 The Second Little Pig p. 30 Maple Mallets and Ash Bats p. 35 Start a City p. 63
Polar Bears in Phoenix p. 103	Polar Bears in Phoenix p. 103	Polar Bears in Phoenix p. 103
Rocks to Buildings p. 18	Rocks to Buildings p. 18	Rocks to Buildings p. 18

Principle #17

Environmental Education Resources	Content Areas: Art	Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)	Planting Animals p. 141	
Sharing Nature With Children		
Living Lightly in the City	Make a Recycling Jar p. 67	

Concept: Ecosphere change due to human population & technology
Nonrenewable resources

Content Areas

Language Arts	Science	Social Studies
How'd That Get Here? p 73 Changing Land p. 79 Keep on Truckin'? p. 148	Keep on Truckin'? p. 148	How'd That Get Here? p 73* My Use Or Your Use Or Our Use p. 75 Changing Land Values p. 79 Keep on Truckin'? p. 148
Here Today, Gone Tomorrow p. 135 Who Lives Here? p. 139 Planting Animals p. 141	Here Today, Gone Tomorrow p. 135 Who Lives Here? p. 139 Migration Barriors p. 191 To Zone Or Not To Zone p. 193	Here Today, Gone Tomorrow p. 135 Who Lives Here? p. 139 Planting Animals p. 141 Migration Barriors p. 191 To Zone Or Not To Zone p. 193
Where is Away p. 68	Make a Recycling Jar p. 67 Where Is Away? p. 68 Move Over! p. 76 Food For Thought p. 78 Water Dwellers p. 106 From Farm To Table p. 124	Where Is Away? p. 68 Move Over! p. 76 Food For Thought p. 78 From Farm To Table p. 124

Principle #18

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)		
Sharing Nature With Children		
Living Lightly in the City		

Concept: Physical & chemical components of ecosystems: their effect on humans

Content Areas

Language Arts	Science	Social Studies

Principle #19

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)	Did You Notice? p. 64	
Project WILD (Elementary)	Litter We Know p. 51	
Sharing Nature With Children		
Living Lightly in the City		

*-See Appendix for Additional Activities

Content Areas

Language Arts	Science	Social Studies
Choose an Environment p. 9 Memory Circle p. 21 Keep on Truckin'? p. 148	Did You Notice? p. 64 Long Range-Short Range p. 78 Christmas Trees p. 118 A Field, a Forest and a Stream p. 124 Keep on Truckin'? p. 148	Choose an Environment p. 9 Memory Circle p. 21 Did You Notice? p. 64 My Use Or Your Use Or Our Use p. 75 Keep on Truckin'? p. 148
Litter We Know p. 51 Changing Attitudes p. 177 Ethi-Reasoning p. 219 Enviro Ethics p. 227	Litter We Know p. 51 Deadly Links p. 197 Playing Lightly On the Earth p. 211 Ethi-Reasoning p. 219 Enviro Ethics p. 227	Litter We Know p. 51 Changing Attitudes p. 177 Deadly Links p. 197 Ethi-Reasoning p. 219 *
What Are We Consuming? p. 24 Back To Basics p. 27 The Day the Car Disappeared p. 36 My Water Record p. 43 *	What Are We Consuming p. 24 Back To Basics p. 26 The Day the Car Disappeared p. 36 My Water Record p. 43 *	What Are We Consuming? p. 24 Back To Basics p. 26 The Day the Car Disappeared p. 36 Concerned Consumer Survey p. 70 A Woodland Visit p. 121

Principle #20

Environmental Education Resources	Content Areas	
	Art	Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)		
Sharing Nature With Children		
Living Lightly in the City		

Content Areas

Language Arts	Science	Social Studies
Good Buddies p. 87	Good Buddies p. 87	

Principle #21

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)		
Sharing Nature With Children		
Living Lightly in the City		

Content Areas

Language Arts	Science	Social Studies
Here Today Gone Tomorrow p. 135	Here Today Gone Tomorrow p. 135	Here Today Gone Tomorrow p. 135

Grades 4 - 6

Principle #22

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)		
Sharing Nature With Children		
Living Lightly in the City		

Concept: Synergistic effects

Content Areas

Language Arts	Science	Social Studies

Principle #23

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)	Plant Dyes p. 42	
Project WILD (Elementary)	Litter We Know p. 51	
Sharing Nature With Children		
Living Lightly in the City		

Concept: Human impacts on ecosystems
Appreciation of the environment
Appreciating ecosystems and their components

*-See Appendix for Additional Activities

Content Areas

Language Arts	Science	Social Studies
Memory Circle p. 21	Improve Your School Site p. 127	Memory Circle p. 21 Plant Dyes p. 42 The Native Way, a Natural Lifestyle p. 66 Improve Your School Site p. 127
Litter We Know p. 51 Too Close For Comfort p. 185	Environmental Barometer p. 73 Shrinking Habitat p. 187 Migration Barriers p. 191 Deadly Links p. 197 *	Environmental Barometer p. 73 Shrinking Habitat p. 187 Migration Barriers p. 191 Deadly Links p. 197 *
Movin' Around My City p. 34 Makin' Movin' Graphs p. 35 Land Use Planning For the Future p. 94	Movin' Around My City p. 34 Makin' Movin' Graphs p. 35 Land Use Planning For the Future p. 94 Water Dwellers p. 106	Movin' Around My City p. 34 Makin' Movin' Graphs p. 35 Land Use Planning For the Future p. 94

Principle #24

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)		
Sharing Nature With Children		
Living Lightly in the City		

Content Areas

Language Arts	Science	Social Studies
Memory Circle p. 21		Memory Circle p. 21 Vacation Homes p. 77
To Zone Or Not To Zone p. 193	Shrinking Habitat p. 187 To Zone Or Not To Zone p. 193 Deadly Links p. 197	Shrinking Habitat p. 187 To Zone Or Not To Zone p. 193 Deadly Links p. 197

Principle #25

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)	The Closer You Look p. 10 Patterns in Nature p. 14 Colors From Nature p. 46 The Artist As a Recorder of Reality p. 62	An Individual Experiment p. 8 Expanding Sensory Perception p. 12
Project WILD (Elementary)		
Sharing Nature With Children	Earth Windows p. 20	
Living Lightly in the City	Conserve It! p. 80 Mother Earth p.128	

*-See Appendix for Additional Activities

Content Areas

Language Arts	Science	Social Studies
Adopt a Tree p. 3 Sounds in City and Forest p. 7 Sounds Around p. 20 An Environmental Exchange Box p. 131	Adopt a Tree p. 3 An Individual Experiment p. 8 Sounds Around p. 20	Sounds in City and Forest p. 7 Musing On Music p. 69 An Environmental Exchange Box p. 131
Cartoons and Bumper Stickers p. 167 The Power of a Song p. 171		Cartoons and Bumper Stickers p. 167 The Power of a Song p. 171
Earth Windows p. 20 Role Playing p. 31 Duplication p. 44 What Animal Am I? p. 69 *	Earth Windows p. 20 Heartbeat of a Tree p. 22 Blind Walk p. 24 Role Playing p. 31 *	Blind Walk p.24
Mother Earth p. 128	Conserve It! p. 80 Mother Earth p. 128	Mother Earth p. 128

Principle #26

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)	The Closer You Look p. 10 Patterns In Nature p. 14 Colors From Nature p. 46	An Individual Experiment p. 8 Expanding Sensory Perception p. 12
Project WILD (Elementary)	Planning For People and Wildlife p. 205 Improving Wildlife Habitat In the Community p. 225	
Sharing Nature With Children	Earth Windows p. 20	
Living Lightly in the City	Mother Earth p. 128	

*-See Appendix for Additional Activities

Content Areas

Language Arts	Science	Social Studies
Adopt a Tree p. 4* Sounds in City and Forest p. 7 Sounds Around p. 20 The Artist As a Recorder of Reality p. 62	Adopt a Tree p. 4 An Individual Experiment p. 8 Sounds Around p. 20	Sounds in City and Forest p. 7 I'd Like To Visit a Place Where p. 39 Musing On Music p. 69 An Environmental Exchange p. 131
Improving Wildlife Habitat In the Community p. 225	Planning For People and Wildlife p. 205 Improving Wildlife Habitat In the Community p. 225	Planning For People and Wildlife p. 205 Improving Wildlife Habitat In the Community p. 225
Earth Windows p. 20 Role Playing p. 31 What Animal Am I? p. 69 Tree Silhouttes p. 74 *	Earth Windows p. 20 Heartbeat of a Tree p. 22 Blink Walk p. 24 Role Playing p. 31 *	Blind Walk p. 24
Adjectives Hunt p. 49 Mother Earth p. 128	Adjectives Hunt p. 49 Mother Earth p. 128	Mother Earth p. 128

Principle #27

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)	Leaf Prints p. 15 Tree Shapes p. 17	
Project WILD (Elementary)		
Sharing Nature With Children	Earth Windows p. 20	
Living Lightly in the City		

*-See Appendix for Additional Activities

Content Areas

Language Arts	Science	Social Studies
Touchy Feely Box p. 18 Sounds Around p. 20 Living Lables p. 22 Forest Concentration p. 48	Leaf Hunt Relay p. 11 Leaf Prints p. 15 Tree Cookies p. 60 Are Vacant Lots Vacant? p. 133 *	Forest Concentration p. 48 How Big Is Your Tree p. 58 Tree Cookies p. 60 An Environmental Exchange Box p. 131
Can Do! p. 223	Deadly Links p. 197 Can Do! p. 223	Deadly Links p. 197 Can Do! p. 223
Earth Windows p. 20 Role Playing p. 31 What Animal Am I? p. 69 Scavenger Hunt p. 76	Earth Windows p. 20 Heartbeat of a Tree p. 22 Blind Walk p. 24 Role Playing p. 31 *	Blind Walk p. 24
Nature In the Neighborhood p. 8 Find It On My Map p. 9 Tree History p. 15 Adjectives Hunt p. 49	Nature In the Neighborhood p. 8 Find It On My Map p. 9 Tree History p. 15 Adjectives Hunt p. 49 Worm's the Word p. 67	Tree History p. 15

Grades 4 - 6

Principle #28

Environmental Education Resources	Content Areas Art	Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)		
Sharing Nature With Children		
Living Lightly in the City		

Concept: Importance of ecosystem processes & changes

Content Areas

Language Arts	Science	Social Studies
Mapping It Up! p. 93	Mapping It Up! p. 93	Mapping It Up! p. 93

Grades 4 - 6

Principle #29

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)		
Sharing Nature With Children		
Living Lightly in the City		

Content Areas

Language Arts	Science	Social Studies
	Fire! p. 138 Forest Consequences p. 151	Fire! p. 138 Forest Consequences p. 151

Principle #30

Environmental Content Areas

Education Resources	Art	Health
Project Learning Tree (Elementary)	Classroom Conversation p. 144 Outdoor Manners Coloring Book p 147	
Project WILD (Elementary)	Planning For People and Wildlife p. 205	Water's Going On? p. 213 What Did Your Lunch Cost Wildlife? p. 215
Sharing Nature With Children		
Living Lightly in the City	Make a Recycling Jar p. 67 Mother Earth p. 128	

*-See Appendix for Additional Activities

Content Areas

Language Arts	Science	Social Studies
Woodwork p. 32 Outdoor Manners Coloring Book p. 147 Keep on Truckin'? p. 148	City Trees p. 8 Improve Your School Site Healthy and Unhealthy p. 129	Woodwork p. 32 Paper In the Classroom p. 51 City Trees p. 80 Classroom Conversation p. 144 *
Wild Work p. 129 Ethi-Reasoning p. 219 Can Do! p. 223	Wild Work p. 129 Planning For People and Wildlife p. 205 Water's Going On?! p. 213 What Did Your Lunch Cost Wildlife? p. 215 *	Wild Work p. 129 Planning for People and Wildlife p. 205 Water's Going On?! p. 213 What Did Your Lunch Cost Wildlife? p. 215 *
Wanted: Environmental Helpers p. 28 Clean It Up Campaign p. 63 Where Is Away? p. 68 Land Use Planning For the Future p. 94 *	Wanted: Environmental Helpers p. 28 Clean It Up Campaign p. 63 Make a Recycling Jar p. 67	Wanted: Environmental Helpers p. 28 Clean It Up Campaign p. 63 Where Is Away? p. 68 What About a Central City? p. 96 Mother Earth p. 128

Grades 4 - 6

Principle #31

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)		
Sharing Nature With Children		
Living Lightly in the City		

Concept: Analyzing & evaluating alternative action strategies

Content Areas

Language Arts	Science	Social Studies
Ethi-Reasoning p. 219 Can Do! p. 223	Ethi-Reasoning p. 219 Can Do! p. 223	Ethi-Reasoning p. 219 Can Do! p. 223

Principle #32

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)		
Sharing Nature With Children		
Living Lightly in the City	Conserve It! p. 80 Mother Earth p. 128	

Content Areas

Language Arts	Science	Social Studies
Can Do! p. 223	Can Do! p. 223	Can Do! p. 223
Mother Earth p. 128	Conserve It! p. 80 Mother Earth p. 128	Shopping At the Co-op p. 125 Mother Earth p. 128

Grades 4 - 6

Principle #33

Environmental Education Resources	Content Areas: Art	Content Areas: Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)		
Sharing Nature With Children		
Living Lightly in the City		

Content Areas

Language Arts	Science	Social Studies
Can Do! p. 223	Can Do! p. 223	Can Do! p. 223

Grades 4 - 6

Principle #34

Environmental Education Resources	Content Areas Art	Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)		
Sharing Nature With Children		
Living Lightly in the City		

Concept: Monitoring & evaluating policies

Content Areas

Language Arts	Science	Social Studies

Grades 4 - 6

Principle #35

Environmental Education Resources	Content Areas Art	Health
Project Learning Tree (Elementary)		
Project WILD (Elementary)		
Sharing Nature With Children		
Living Lightly in the City		

Concept: Monitoring feedback & adjusting actions as necessary

Content Areas

Language Arts	Science	Social Studies

Grades 4-6 Appendix

Principle #	Content Area	Resource	Activity	Page #
5	Science	P.L.T.	Sow Bugs "n" Soil	104
			Web of Life	106
			Large Leaves	111
			Trees as Habitats	112
			School Yard Diversity	117
			Sand, Silt and Clay	135
			Fertilizers	136
		WILD	Seed Need	71
			Good Buddies	87
			Rainfall and the...	121
6	Science	P.L.T.	Adopt a Tree	4
			The Closer You Look	10
			Did you Notice?	64
			Succession and Soil...	134
7	Science	WILD	What did your Lunch...	215
		Sharing	Owls and Crows	73
			Bat and Moth	94
8	Language Arts	WILD	The Thicket Game	95
			Adaptation Artistry	97
			Seeing is Believing	99
	Science	WILD	Ants on a Twig	9
			Habitat Lap sit	33
			Eco-Enrichers	69
			Graphananimal	81
			Urban Nature Search	83
			Adaptation Artistry	97
			Classroom Carrying.....	109
			Muskox Maneuvers	111
			Checks and Balances	147
9	Science	WILD	Bearly Born	5
			Ants on a Twig	9
			Habitracks	35
			How Many Bears...	115
11	Language arts	WILD	Make a Coat	75
			No Water Off a Duck's...	151
			And the Wolf Wore....	163
			First Impressions...	161
			Keeping Score	201
		Living	Makin' Movin' Maps	35
			From Canoes to Cars	35
			Checking out the...	69
			People on the Move	90

Principle #	Content Area	Resource	Activity	Page #
11	Science	WILD	Make a Coat	75
			No Water Off a Duck's...	151
			First Impressions	161
			And the Wolf wore...	163
		Living	Looking Back	14
			Rocks to Buildings	18
			Movin' Around My City	34
			Makin' Movin' Graphs	35
			From Canoes to Cars	35
			Checking out the...	69
			Water Dwellers	106
	Social Studies	WILD	Make a Coat	75
			No Water off a Duck's...	151
			Ethi-Thinking	209
		Living	Looking Back	14
			Vacant Lot Archeology	16
			Movin' Around My City	34
			Makin' Movin' Graphs	35
			Resources for All	79
			Noise Makers	81
			The Air we Breathe	91
			Water Equality	112
13	Language arts	Living	Land Use Planning....	94
	Social Studies	P.L.T.	Movin'	143
14	Language Arts	WILD	Litter We Know	51
			The Hunter	153
			To Zone or Not to Zone	193
	Science	WILD	Habitat Lap sit	33
			Litter we Know	51
			No Water off a Duck's...	151
			THe Hunter	153
			Too Close for Comfort	185
			Shrinking Habitat	187
			To Zone or not to Zone	193
			Keeping Score	201
			What did your Lunch...	215
		Living	Looking Back	14
			Vacant Lot Archeology	16
			What are we Consuming?	24
			Move Over!	76
	Social Studies	WILD	Environmental Barometer	73
			Here Today...	135
			No Water off a Duck's...	151
			Too Close for Comfort	185
			To Zone or Not to Zone	193
			What did your Lunch...	215
		P.L.T.	Movin'	143
		Living	Food for Thought	78
			Resources for All?	79

Principle #	Content Area	Resource	Activity	Page #
15	Science	WILD	Grasshopper Gravity	15
			The Hunter	153
	Social Studies	P.L.T.	Choose an Environment	9
17	Social Studies	P.L.T.	Movin'	143
19	Language Arts	Living	Concerned Consumer...	70
			A Woodland Visit	121
	Social Studies	WILD	Playing Lightly...	211
			Environmental Ethics	227
	Science	Living	Concerned Consumer...	70
23	Science	WILD	Litter we Know	51
			Too Close for Comfort	185
25	Language Arts	Sharing	Tree Silhouettes	74
			Still Hunting	112
			Silent Sharing Walk	122
	Science	Sharing	Duplication	44
			What Animal am I?	69
26	Language Arts	P.L.T.	I'd Like to Visit...	39
		Sharing	Silent Sharing Walk	122
	Science	Sharing	What animal am I?	69
27	Science	P.L.T.	Touchy Feely Box	18
			Sounds Around	20
			Living Labels	22
		Sharing	What Animal am I?	69
			Scavenger Hunt	76
			Wild Animal Scramble	78
			Bird Calling	101
			Calling Predators	104
			Recon-Hike	106
30	Language Arts	Living	What About a Central...	96
			Mother Earth	128
	Science	WILD	Ethi-Reasoning	219
			Can DO!	223
		Living	Where is Away?	68
			Land Use Planning...	96
			Mother Earth	128
	Social Studies	P.L.T.	Improve Your School...	127
			Healthy and Unhealthy	129
		WILD	Ethi-Reasoning	219
			Can Do!	223

Additional E.E. Curriculum Resources

Acclimatizing. 1972.
Acclimatization. 1974.
Sunship Earth. 1979.

Steve Van Matre. Published by the American Camping Association in Martinsville, IN 46151 and the Institute for Earth Education, P.O. Box 288, Warrenville, IL 60555.

Van Matre first popularized the sensory approach to environmental study--immersing people in a swamp, blindfolding them through the forest, and digging their hands into soil. By experiencing the environment with all of our senses, we will come to know, and appreciate it better. Acclimatizing and Acclimatization describes short activities and adventures to discover the outdoors. Sunship Earth is a carefully structured five-day residential outdoor program. The magic and discovery is still there, but with an emphasis on the larger picture of ecology and human interaction.

Biological Science: An Ecological Approach. Fourth ed. 1978.

Biological Sciences Curriculum Study (BSCS), Rand McNally, P.O. Box 930, Boulder, CO. An excellent secondary biology text that emphasizes ecology throughout. Picked as one of the best biology textbooks used in the nation's high schools. Eighteen books were studied by a group commissioned by People for the American Way. This was one of the three excellent textbooks which they described as "doing an excellent job of covering evolutionary theory and the field of biology.

Central Wisconsin Environmental Resource Manual. 1981

Central Wisconsin Environmental Station (CWES), University of Wisconsin, Stevens Point, National Science Foundation Special Training Project in Ecology and Environmental Education.

Provides listings of community resources that can be used as field trips or speakers. Three volumes cover resources in the following counties: Adams, Wood, Columbia, Kewaunee, Green Lake, Sauk, Waushara, Portage, Marathon, Langlade, Lincoln, Waupaca, Clark, Oneida, Shawano, Taylor, and Winnebago. Resources have been located and analyzed and are presented in an organized format in order to provide a practical, relevant, and ready reference that can facilitate resource use by teachers at all grade levels. Focuses specifically on resource use for environmental education.

Connections: A Curriculum in Appropriate Technology for Fifth and Sixth Grades. 1980.

Written by and available from the National Center for Appropriate Technology. Box 3838, Butte, Montana 59701.

This activity guide for elementary teachers provides exciting ideas and information in solar energy, water conservation, transportation, recycling, nutrition, and gardening--a good beginning for understanding many current issues.

Conserving Soil.

U.S.D.A. Soil Conservation Service. Published and distributed in 19__. Currently available from the National Association of Conservation Districts Service Dept., P.O. Box 855, League City, TX 77573-9989.

Color transparencies, ditto masters, activities, and background information help teachers convey information about soil and its wise use.

The Cousteau Almanac: An Inventory of Life On Our Water Planet.

Jaques Ives Cousteau and Cousteau Staff. Published by Doubleday Company in New York, 1981. Available through bookstores.

The Almanac is a treasure of information on environmental issues around the world in the 1980's. Articles are well written, well documented, and arranged in a unique order. Scattered throughout are vignettes of people and organizations who work toward the solutions to environmental problems, usually on a local level, and usually successfully. The last section provides information on organizing around an issue and taking action.

Environmental Science: An Introduction, Second edition.
Living in the Environment. Fourth edition.
G. Tyler Miller. Published by Wadsworth Publishing Company in Belmont, CA. 1986. Available as text.

Both texts fairly represent the variety of perspectives that color environmental issues. Environmental Science covers the issues in less depth than Living in the Environment. Written for college students.

Environmental Science: Managing the Environment. Second edition.
P. Walton Purdom and Stanley H. Anderson. Merrill Publishing Co. 1983.

Textbook designed to create a threefold understanding of: (1) all facets of the environment that affect ecosystems and human life; (2) the impacts of human activities on various aspects of environmental quality; and (3) the environmental, economic, and cultural factors that shape urban development.

Humanizing Environmental Education: A Guide for Leading Nature and Human Nature Activities.
Clifford Knapp and Joel Goodman. Published by the American Camping Association in Martinsville, IN, 1981. Available from the American Camping Association, Martinsville, IN, 46151-7902.

Introduction to Environmental Studies.
Jonathan Turk and W.B. Saunders. 1980.

This secondary-college text is divided into the following study units:

I. Introduction and Social Background
II. The Biological Background
III. Human Population
IV. Resources and Energy
V. Rural Land Use
VI. Pollution

This book was written to provide environmental education to a wide variety of people. It gives an overview of various social, economic, technical, and political issues. The problems of ecological disruptions, growth of human population, land use, energy, nuclear power, food supplies, pesticides, air and water pollution, solid waste, and noise are covered. Specific features of this text include: case histories, take-home experiments, problems and questions for class discussions, chapter summaries, glossary, and use of the metric system.

Investigating Your Environment. June, 1980.
U.S. Forest Service-U.S. Dept. of Agriculture, U.S. Government Printing Office.

A set of separate activities for secondary teachers designed for investigating different components of the environment. Techniques such as collecting observable data, making inferences, setting up investigations to check inferences, communicating feelings and awareness are used in these activities. Many of the investigations are wholly or partially conducted outside and all stress active participation by the learner. Some of the activities cover such topics as water, wildlife, soils, forestry, land use, and human communities.

Manatees.

For information, write: Florida Department of Natural Resources, 3900 Commonwealth Blvd., Tallahassee, FL 32302.

The excellent educator's guide to the natural history, habitat, problems and conservation of the Order Sirenia (manatees) contains thorough information, excellent illustrations and innovative activities for use with students. Also included is a color poster, "Sirenians of the World," a reference sheet for further information and a manatee fact sheet. A 23 minute videotape program, "Silent Sirens: Manatees in Peril," is available.

Nature Scope.

National Wildlife Federation. Periodical. Produced 4-6 times a year by the National Wildlife Federation, 1412 Sixteenth Street, Washington D.C. 20036.

Nature Scope targets a new area of the environment each issue: wetlands, mammals, birds, deserts, weather, insects, etc. Each 64 page booklet is packed with teacher background, interdisciplinary activity ideas, resources, handout masters, and ideas to extend the theme. Back issues are available.

Nature With Children of All Ages

Edith Sisson. Published by Englewood Cliffs of NJ in 1982. Available through bookstores.

Earthworm races, seed planting, aging a tree, winter temperature, migration reporting, and water testing are some of the many activity ideas that fill this 200 page guide to nature study. It includes good ideas for early elementary explorations.

OBIS. Outdoor Biology Instructional Strategies.

Available at the Schlitz Audubon Center Shop, 1111 E. Brown Deer Road, Milwaukee, WI 53217.

OBIS is an outdoor program in module form that offers young people fun and challenging opportunities to investigate ecological relationships in their local environments. It consists of a series of one hundred activities that can be used together or individually. One may use them as the core for an outdoor education program or to provide some challenging biology activities that also stress language, math and problem-solving skills.

The Ocean: Consider the Connections...

Written, published and available from the Center for Environmental Education, 6624 9th Street, Washington D.C. 20001, 1985.

Information and activities on our global waterways: waves, tides, animals, adaptations, ecosystems, and people are covered.

Our Great Lakes Connection: A Curriculum Guide for Grades Kindergarten Through Eight.

Lynn Entine. Wisconsin Sea Grant Program of the University of Wisconsin-Madison, Environmental Resource Center, 1450 Linden, Madison, WI 53706. 1985.

Preparing for Tomorrow's World.

Louis Iozzi. Written from Rutgers University, Newark, NJ and available from Sopris West Inc., 1120 Delaware Ave., Longmont, CO 80501. 1982.

Twelve curriculum modules include a Teacher's Guide and Student Guide in this interdisciplinary program for grades 7-12. Issues such as energy, communications, technology, bioethics, and transportation are presented with background readings and dilemmas--situations with no good resolution, to help students practice seeing multiple viewpoints, communicating their ideas, and making decisions on tough ethical issues.

Project Creation. Concern Regarding the Environment and Technology in our Nation/Neighborhood.

Title IV, ESEA, Developed at La Salle-Peru Township High School, District #120, La Salle, IL. 1978. Available through: The Environment and Technology Project, 1633 N. Burling, Chicago, IL 60614. Telephone: (312) 280-8163.

A series of sixteen environmental and technology units that cover the major concepts of energy, land use, urban management, and pollution. "The overall goal of CREATION is the development of students as citizens who will hold a strong environmental ethic." Five universal objectives appear in this curriculum as follows: interdependence, impact, maintenance, quality of life, and improvement.

Teaching Environmental Education.

Harold Hungerford and R. Ben Payton. 1976. Published by J. Weston Walch, Portland, ME 04104.

A source of information for middle and secondary school teachers who are responsible for curriculum development and/or instruction in this field. Provides components of environmental literacy, an introduction to ecological foundations, analysis of an environmental issue, suggestion for environmental action training, and a summary of selected environmental education programs for possible use. Suggested activities are provided to guide the teacher in developing and implementing environmental education strategies.

Thinking Globally and Acting Locally: Environmental Education Teaching Activities.

Lori Mann and William B. Stapp. Published by and available from ERIC/SMEAC, Ohio State University, 1200 Chambers Road, Third Floor, Columbus, OH 43212. 1982.

Environmental issues are larger than any one municipal boundary and are tightly intertwined with issues of culture, economics, politics, history, and science. This manual provides activities for upper elementary through high school students that help distill the global consequences of local issues and actions.

Understanding the Game of the Environment: An Illustrated Guide to Understanding Ecological Principles.

David R. Houston. Published by and available from the US Forest Service, US Dept. of Agriculture, Washington D.C. as the Agricultural Information Bulletin No. 426. 1979.

Here is one of the few ecological texts published for high school students. Major ecological principles are summarized and organized into a game, complete with players, rules, boundaries, etc. Detailed illustrations provide the basis for in-depth discussions.

The Wholeschool Book: Teaching and Learning in the 20th Century.

Bob Samples, Cheryl Charles, and Dick Barnhart. Published by Addison-Wesley Publishing Company, Reading, MA. 1977. Available at bookstores.

This book offers a humanistic, people-oriented philosophy of education complete with suggestions for questions, discussions, and activities that encourage students to participate in the learning process.

Wildlife Habitat Conservation Teacher's PAC Series.

Environmental education teaching aids available from the National Institute for Urban Wildlife. Write: National Institute for Urban Wildlife, 10921 Trotting Ridge Way, Columbia, MD 21044.

The PAC's were originally developed by the U.S. Fish and Wildlife Service and targeted at the fourth through seventh grade level student. The contents of each teacher's PAC component are: poster (1), teaching overview (1), lesson plans (3), student centered pages (2-6), and a folder. The following PAC's are available: Urban Areas; Freshwater Marshes: Beaches, Dunes and Barrier Islands; Wetland Conservation and Uses; Endangered Species; Migrating Birds; Hunting and Wildlife Conflicts; and Wildlife Conflicts.

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